

CLAIMS

- 1 1. A battery tester, comprises:
 - 2 a voltage controlled display;
 - 3 a voltage divider having a terminal coupled to a
 - 4 terminal of the voltage controlled display; and
 - 5 a non-linear device coupled to the voltage divider and
 - 6 a second terminal of the voltage controlled display.
- 1 2. The battery tester of claim 1 wherein the display is an
2 electrophoretic display.
- 1 3. The battery tester of claim 1 wherein the non-linear
2 device is a metal-insulator-metal diode.
- 1 4. The battery tester of claim 1 wherein the voltage
2 divider includes a pair of resistors having the same resistance.
- 1 5. The battery tester of claim 1 further comprising a
2 resistor and wherein the resistor is coupled in series with the
3 non-linear device.
- 1 6. The battery tester of claim 1 wherein the tester in
2 operation is always coupled to the battery.
- 1 7. The battery tester of claim 1 wherein a voltage
2 potential at the first terminal of the display is a fraction of
3 a battery cell voltage and a potential at the second terminal of
4 the display is determined by a voltage across the non-linear
5 element and resistor.
- 1 8. The battery tester of claim 7 wherein as current is
2 drawn from a battery due to use or leakage, the voltage of one of

3 the terminals of the display will vary with respect to the
4 voltage at the other terminal of the display.

1 9. The battery tester of claim 8 wherein the non-linear
2 device will switch states causing the voltage at one terminal of
3 the display to become negative with respect to the voltage at the
4 other terminal of the display to cause a change in color of the
5 display to indicate that the battery is no longer within some
6 defined specification.

1 10. A battery comprising:
2 a cell having an outer circumference; and
3 a battery tester disposed on the outer circumference of
4 the cell, said battery tester comprising:

5 a voltage controlled display;
6 a voltage divider having a terminal coupled to a
7 terminal of the voltage controlled display; and
8 a circuit path coupled in parallel with the
9 voltage divider including a non-linear device and a
10 resistor coupled in series wherein the non-linear
11 device has a switching voltage characteristic that
12 corresponds in magnitude to a voltage of the cell.

1 11. The battery of claim 10 wherein the display of the
2 tester is an electrophoretic display.

1 12. The battery of claim 10 wherein the non-linear device
2 of the tester is a metal-insulator-metal diode.

13. The battery of claim 10 wherein the voltage divider of
the tester includes a pair of resistors having the same
resistance.

1 14. The battery of claim 11 wherein the non-linear device
2 of the tester is a metal-insulator-metal diode and the voltage
3 divider of the tester includes a pair of resistors having the
4 same resistance.

1 15. The battery of claim 10 wherein the tester is in
2 continuous electrical contact with the cell.

1 16. The battery of claim 10 wherein a voltage potential at
2 the first terminal of the display is some fraction of a battery
3 cell voltage and a potential at the second terminal of the
4 display is determined by voltage across the nonlinear element and
5 resistor.

1 17. The battery of claim 16 wherein as current is drawn
2 from a battery due to use or leakage, the voltage of one of the
3 terminals of the display will vary with respect to the voltage at
4 the other terminal of the display.

1 18. The battery of claim 17 wherein the non linear device
2 will switch states causing the voltage at one of the terminal of
3 the display to become negative with respect to the voltage at the
4 other terminal of the display to cause a change in color of the
5 display to indicate that the battery is no longer within some
6 defined specification.